



RECEIVED

SEP 25 2009

D.N.R.C.

August 17, 2009

Chad Newman, EAP Coordinator
Dam Safety Program
MT DNRC
1424 9th Ave
Helena, MT 59620

Re: Crazy Mountain Ranch Dam 2009 EAP Update

Mr. Newman,

Please find enclosed the completed Emergency Action Plan (EAP) update check list provided in your August 5, 2009 correspondence. The phone numbers have been either verified or updated to ensure they are correct and functional.

The updated information includes the phone number updates that you provided. Enclosed is the complete updated Crazy Mountain Dam EAP for your records. Complete EAP were distributed so the additional distribution you requested has all the EAP information.

Please feel free to contact me with questions or concerns at 406 686-4018.

Sincerely,

Jonathan Croston
Specialist, Environmental and Safety
Crazy Mountain Ranch
ALCES

Cc: Crazy Mountain Ranch Facilities Manger, Kevin Bales
Crazy Mountain Ranch Specialist, Environmental and Safety, Jonathan Croston
Crazy Mountain Ranch Mobile and Emergency Command Centers
Sheriff, Park County Montana
Park County DES Coordinator, Mrs. Belinda Van Nurden
MT Disaster and Emergency Services, Dave Maser
The National Weather Service, Gina Loss

Enclosure

PO Box 79 · 52 Hammond Creek Road · Clyde Park, Montana 59018 · (406) 686-4480 · fax (406) 686-4911

EMERGENCY ACTION PLAN

Crazy Mountain Dam

Crazy Mountain Ranch
Owner: Philip Morris USA, Inc.
Operator: Altria Consumer Engagement Services, Inc.
PO Box 79
Clyde Park, MT 59018

Original EAP January 2002
Revised June 2006 (Rev #1)
Revised April 2007 (Rev #2)
Revised July 2008 (Rev #3)
Revised August 2009 (Rev #4)

If the Crazy Mountain Dam is failing or failure seems imminent, call

Park County Sheriff.....911
Local Disaster and Emergency Services.....(406) 222-4190

TABLE OF CONTENTS

| | | |
|------|---|-----|
| I. | INTRODUCTION | |
| A. | <u>Purpose</u> | 3 |
| B. | <u>Description of Dam</u> | 3 |
| C. | <u>Access to Dam</u> | 3 |
| D. | <u>Hazard Area</u> | 3 |
| E. | <u>Emergency Repair Material</u> | 3 |
| F. | <u>Responsibility and Authority</u> | 4 |
| G. | <u>Periodic Review/Update</u> | 4 |
| H. | <u>Approval</u> | 4 |
| II. | NOTIFICATION PROCEDURES | |
| A. | <u>Imminent or Actual Failure</u> | 5 |
| B. | <u>Potentially Hazardous Situation</u> | 7 |
| C. | <u>Posting of the Notification Flowchart and Distribution of the EAP.</u> | 9 |
| III. | MITIGATION ACTIONS | |
| A. | <u>Potential Problems and Immediate Response</u> | 10 |
| B. | <u>Emergency Supplies and Resources</u> | 12 |
| C. | <u>Local Contractors and Engineers</u> | 12 |
| | APPENDICES | 13 |
| | APPENDIX A Technical Data | A-1 |
| | APPENDIX B Inundation and Evacuation Maps | B-1 |
| | APPENDIX C Emergency Material Location Map | C-1 |
| | APPENDIX D Telephone Directory | D-1 |
| | APPENDIX E Dam Incident Report Form | E-1 |
| | APPENDIX F Plan Distribution List | F-1 |

I. INTRODUCTION

A. Purpose

The purpose of this Emergency Action Plan (EAP) is primarily to safeguard lives of downstream residents and secondarily to reduce property damage to the citizens of Crazy Mountain Ranch and Park County, along Hammond and Rock Creek, Shields and Yellowstone Rivers, in the unlikely event that the Crazy Mountain Dam were to be breached or was in imminent danger of breaching.

B. Description of Dam

Crazy Mountain Dam is in Park County, in SE ¼ Section 14, Township 2 North (T2N), Range 10 East (R10E), and located on Hammond Creek, a tributary to Rock Creek and eventually the Shields River, which flows into the Yellowstone River. It is Owned by Philip Morris USA, Inc., P.O. Box 79, Clyde Park, MT 59018, and is used for irrigation and recreation purposes. Technical data pertaining to Crazy Mountain Dam and its structures are shown in Appendix A.

C. Access to the Dam

Crazy Mountain Dam is located southwest of the guest Ranch with a dam access road leading from the town. Note that the road leading to the Guest Ranch will become inundated in the event of a failure! The nearest telephone is at the Crazy Mountain Stage Stop, about 1/8 mile upstream of the dam.

D. Hazard Area

The evacuation area extends along Hammond Creek and Rock Creek.

E. Emergency Material

There are several areas on the ranch are available for repair material in the event of an emergency. See appendix C for locations. The first is the gravel pit (A) located on the north side of the road between the Ranch Foreman's Residence and Bird Farm. A second gravel pit (B) is located north of Rock Creek road along the south Ranch boundary. A third area available for material is the borrow storage area (C) located 9/10 mi. southwest of the Criswell Place. The final location available for material is the area (D) shaded on the map near the dam. In the event of an emergency the topsoil in this area can be used. However, before this soil can be used, all the vegetation on top must be removed. This area should only be used in the gravest of emergencies. Otherwise, the gravel pits and borrow area are to be used.

F. Responsibility and Authority

Pursuant to the Dam Safety Act, Chapter 15 of Title 85, MCA, the dam owner is responsible for production, coordination, maintenance, and implementation of this Emergency Action Plan (EAP)

G. Periodic Review/Updates

The owner will review/update this EAP annually. Review/update by a qualified professional engineer will be accomplished as required by the dam's operating permit, but not less than every five years.

H. Approval

By my signature, I acknowledge that I, or my representatives, have reviewed this plan and agree to the tasks and responsibilities assigned herein for my department and/or agency.

Katie Hale – Director Crazy Mountain Ranch
Printed Name and Title

ALCES

Signature

Katie Hale

Date

9/17/09

II. NOTIFICATION PROCEDURES

A. Imminent or Actual Failure

IF THE CRAZY MOUNTAIN DAM IS FAILING, TWO THINGS MUST BE DONE IMMEDIATELY:

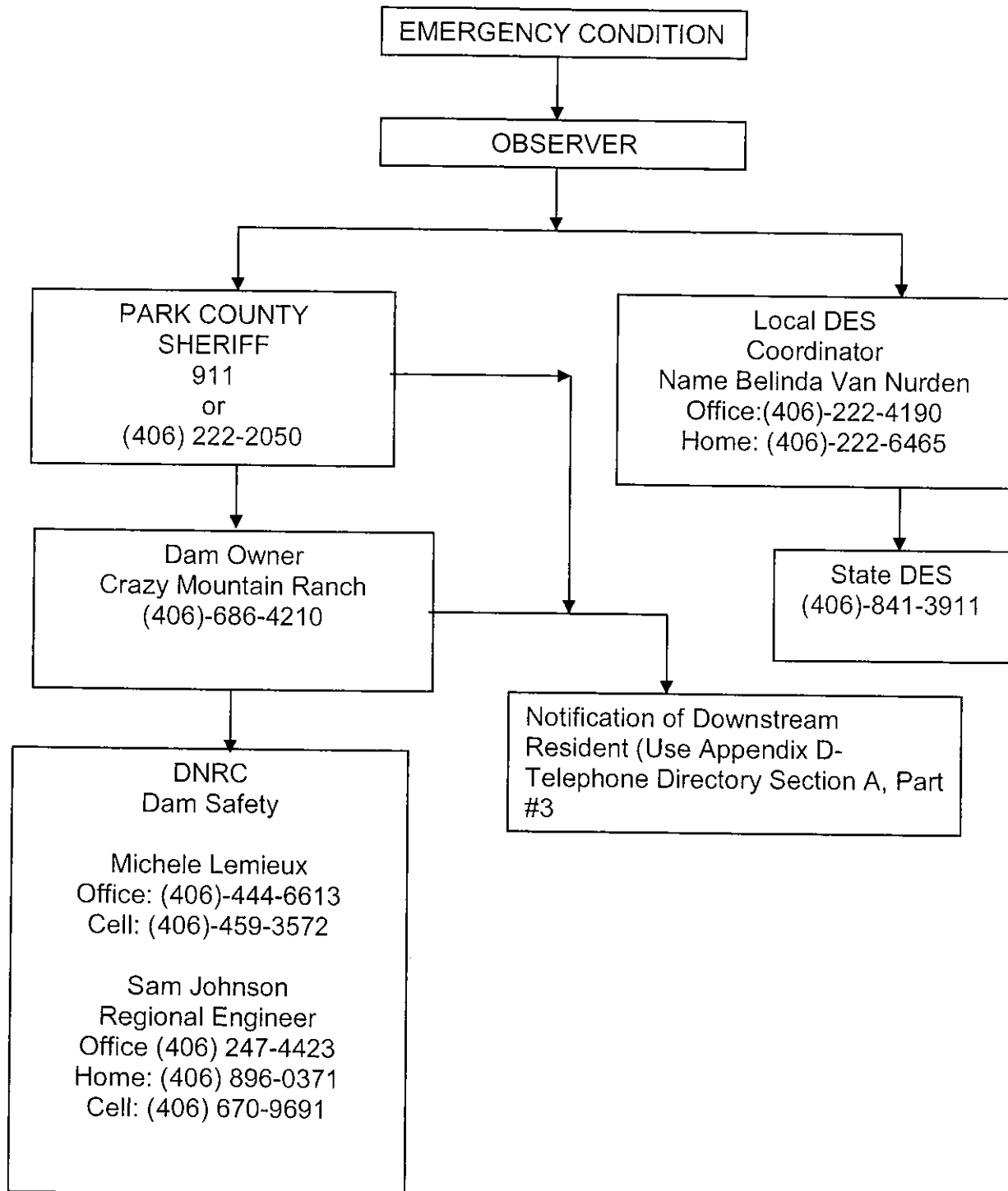
1. Residents in the hazard area downstream from the dam must be warned according to the Emergency Action Plan, and
2. Any steps that might save the dam or reduce damage to the dam or hazard area downstream should be taken. (Refer to the map in Appendix B to determine the areas that are likely to be inundated if the dam fails).

As dam owner, it is your responsibility to:

1. Call the Sheriff's Dispatch Center (911) and Local Disaster and Emergency Services (406-222-4190), if they have not already been notified. Be sure to say, "This is an emergency." They will call other authorities and the media and begin the warning plan.
2. Warn anyone in immediate danger to evacuate to safety. This includes someone on the dam, directly below the dam, or boating on the reservoir, or downstream evacuees, if so directed by the sheriff.
3. Contact the Disaster and Emergency Services staff at least once every hour.
4. If all means of communication are lost:
 - a. Try to find out why
 - b. Get someone else to try to reestablish communications. If these means fail, take care of immediate problems and send someone to get to another radio or telephone that works.

FIGURE 1

CRAZY MOUNTAIN DAM
ACTUAL OR IMMINENT FAILURE
"NOTIFICATION FLOWCHART"

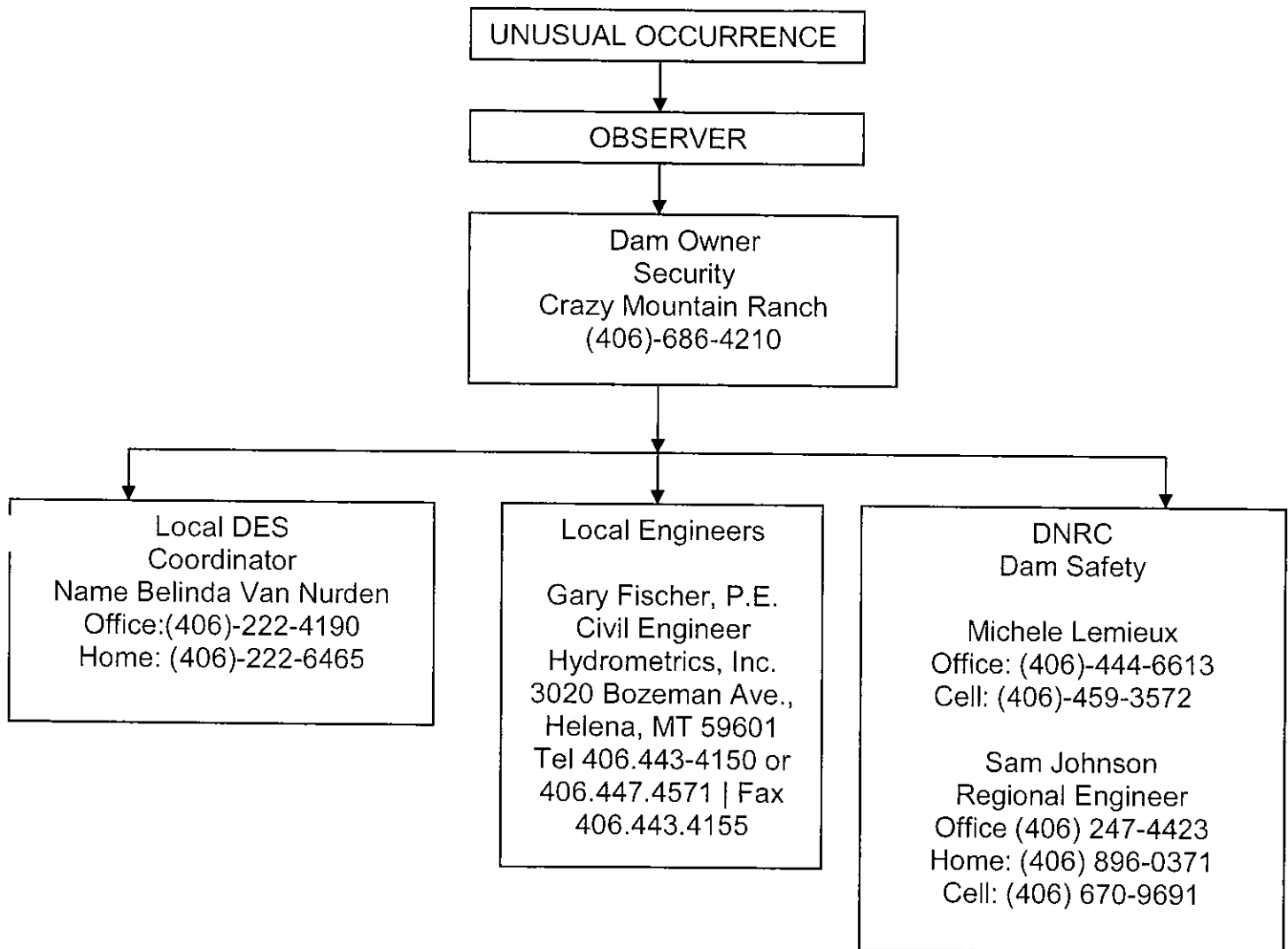


B. Potentially Hazardous Situation

A potentially hazardous situation is an event or condition not normally encountered in the routine operation of the dam and reservoir. Among the unusual occurrences that may affect the dam are dam embankment problems (see section B.2.), failure of the spillway or outlet works, heavy precipitation or rapid spring snow melt, landslides, earthquakes, erosion, theft, vandalism, acts of sabotage, and serious accidents. These occurrences may endanger the dam, the public, or the downstream valley and may necessitate a temporary or permanent revision of the dam's operating procedures. Help in these situations can be obtained by notifying those people shown in Figure 2.

FIGURE 2

CRAZY MOUNTAIN DAM
POTENTIALLY HAZARDOUS SITUATION
"NOTIFICATION FLOWCHART"



1. If the dam owner discovers an unusual condition of the dam embankment that could threaten the structure:
 - a. Have a qualified engineer inspect the dam as soon as possible to determine whether emergency action is necessary.
 - b. Notify the Local Disaster and Emergency Services Coordinator (406-222-4190) of the potential problem.
 - c. Contact the Dam Safety Program (406-444-9362) of the Department of Natural Resources and Conservation (DNRC).

2. Among the conditions the dam owner should watch for are:
 - a. Overtopping of the dam by flood waters
 - b. Loss of material from the dam crest due to storm wave erosion
 - c. Slides on either the upstream or downstream slope of the embankment as evidenced by
 1. Sloughing
 2. Cracking
 3. Bulging
 4. Scarping
 - d. Erosional flows through, beneath, or around the embankment as evidenced by
 1. Excessive seepage
 2. Discoloration of the seepage
 3. Boils on the downstream side
 4. Sinkholes
 5. Changes in the flow from drains
 - e. Failure of outlets or spillways due to clogging or erosion
 - f. Movement of the dam on its foundation as evidenced by
 1. Misalignment
 2. Settlement
 3. Cracking
3. Before calling either an engineer or DNRC to report a problem, the dam owner shall use the form in Appendix D to ensure sufficient information is provided for the engineer to analyze the problems. After talking to the engineer, it may be helpful to document the condition of the dam by making a sketch on the form in Appendix D, showing the extent of the problem. Revise the sketch periodically if the problem develops further. Section III includes further guidelines for courses of action to take mitigate the effect of many problems.

C. Posting of the Notification Flowchart and Distribution of the EAP.

Copies of the Notification Flowchart and EAP are kept in the designated emergency command post and the mobile command center. Additional copies of the Emergency Action Plan are kept in the facilities manager's and environmental coordinator's offices on the ranch. The Park County Sheriff's Office and the Local DES Coordinator will both receive copies of the plan.

III. MITIGATION ACTIONS

Besides normal monitoring of the dam's condition, which is done at least monthly, the owner will provide continuous monitoring and inspection during and after extreme events such as storms and earthquakes. Information on the magnitude of an earthquake or storm can be obtained from the DNRC Dam Safety Program. Actions are suggested below to mitigate problems that may develop, but those actions should never be continued at the risk of injury or at the expense of lessening efforts related to evacuation. Monitoring should identify any of the following potential problems.

A. Potential Problems and Immediate Response Actions

1. OVERTOPPING BY FLOOD WATERS

- a. Open outlet to its maximum safe capacity.
- b. Place sandbags along the crest to increase freeboard and force more water through the spillway and outlet.
- c. Provide erosion-resistant protection to the downstream slope by placing plastic sheets or other materials over eroding areas.
- d. Divert flood waters around the reservoir basin, if possible.
- e. Create additional spillway capacity by making a controlled breach in a low embankment or dike section where the foundation materials are erosion-resistant.

2. LOSS OF FREEBOARD OR DAM CROSS SECTION DUE TO STORM WAVE EROSION

- a. Place additional riprap or sandbags in damaged areas to prevent further embankment erosion.
- b. Lower the water level to an elevation below the damaged area.

3. SLIDES IN THE UPSTREAM OR DOWNSTREAM SLOPE OF THE EMBANKMENT

- a. Lower the water level at a rate and to an elevation considered safe, given the slope condition. If the outlet is damaged or blocked, pumping, siphoning, or a controlled breach may be required.
- b. Stabilize slides on the downstream slope by
 1. weighting the toe area with additional soil, rock, or gravel, and then
 2. restoring lost freeboard by placing sandbags at the crest.

4. EROSIONAL FLOWS THROUGH THE EMBANKMENT, FOUNDATION, OR ABUTMENTS
 - a. Plug the flow with whatever material is available (hay bales, bentonite, or plastic sheeting if the entrance to the leak is in the reservoir basin).
 - b. Lower the water level until the flow decreases to a non-erosive velocity or stops.
 - c. Place a protective sand-and-gravel filter or boil ring over the exit area to hold materials in place.
5. FAILURE OF APPURTENANT STRUCTURES SUCH AS OUTLETS OR SPILLWAYS
 - a. Implement temporary measures to protect the damaged structure, such as closing an outlet or protecting a damaged spillway with riprap.
 - b. Lower the water level to a safe elevation. If the outlet is inoperable, pumping, siphoning, or a controlled breach may be required.
6. MASS MOVEMENT OF THE DAM ON ITS FOUNDATION (SPREADING OR MASS SLIDING FAILURE)
 - a. Immediately lower the water level until excessive movement stops.
7. EXCESSIVE SEEPAGE AND HIGH LEVEL SATURATION OF THE EMBANKMENT
 - a. Lower the water to a safe level.
 - b. Continue frequent monitoring for signs of slides, cracking or concentrated seepage.
8. SPILLWAY BACKCUTTING, THREATENING RESERVOIR EVACUATION
 - a. Reduce the flow over the spillway by fully opening the main outlet.
 - b. Provide temporary protection at the point of erosion by placing sandbags, riprap materials, or plastic sheets weighted with sandbags.
 - c. When the inflow subsides, lower the water to a safe level.
9. EXCESSIVE SETTLEMENT OF THE EMBANKMENT
 - a. Lower the water level by releasing it through the outlet pumping, siphoning, or a controlled breach.
 - b. If necessary, restore freeboard, preferably by placing sandbags.

B. Emergency Supplies and Resources

There are several areas on the ranch are available for repair material in the event of an emergency. See appendix C for locations. The first is the gravel pit (A) located on the north side of the road between the Assistant Ranch Manager Agriculture' Residence and the Assistant Ranch Manager Program's Residence. A second gravel pit (B) is located north of Rock Creek Road along the south Ranch boundary. A third area available for material is the borrow storage area (C) located 9/10 mi. southwest of the Criswell Place. The final location available for material is the area (D) shaded on the map near the dam. In the event of an emergency the topsoil in this area can be used. However, before this soil can be used, all the vegetation on top must be removed. This area should only be used in the gravest of emergencies. Otherwise, the gravel pits and borrow area are to be used.

C. Other Contacts

Local Contractors:

Hogenson Construction
(406)-578-2149

Engineer:

Gary Fischer, P.E. | Civil Engineer
Hydrometrics, Inc.
3020 Bozeman Ave., Helena, MT 59601
Tel 406.443-4150 or 406.447.4571 | Fax 406.443.4155

APPENDICES

Appendix A Technical Data

Technical Data for Crazy Mountain Dam

Max Reservoir Capacity to the Crest of the Dam: 108-acre feet

Normal Reservoir Capacity measured to the Emergency Spillway Crest: 104-acre feet

Normal Water Depth Measured from the Streambed to the Crest of the
Emergency Spillway 36 feet

Dam Height Measured from Streambed to Crest of the Dam:..... 40 feet

Dam Crest Width: 10 feet

Dam Width at Base: 230 feet

Length of Dam Crest: 720 feet

Outlet Capacity:..... 15 cubic feet per second

Spillway Capacity 400 cubic feet per second

Date Constructed 1968

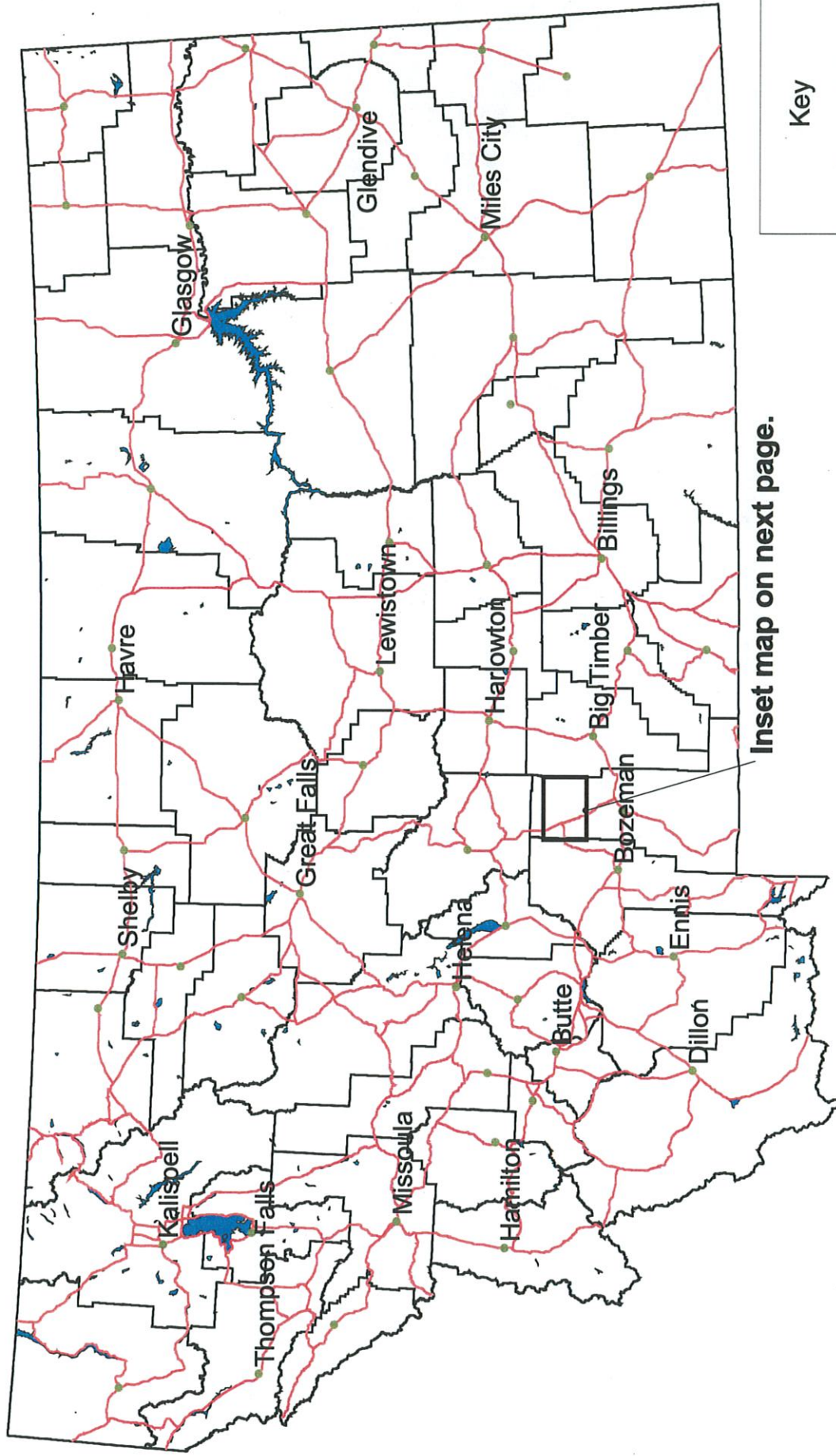
Date Upgrades Constructed 2001

Slope of Upstream Face of Dam (Horizontal to Vertical) 3:1

Slope of Downstream Face of Dam (Horizontal to Vertical) 2.5:1

Appendix B
Inundation and Evacuation Maps

Crazy Mountain Dam Overview Map

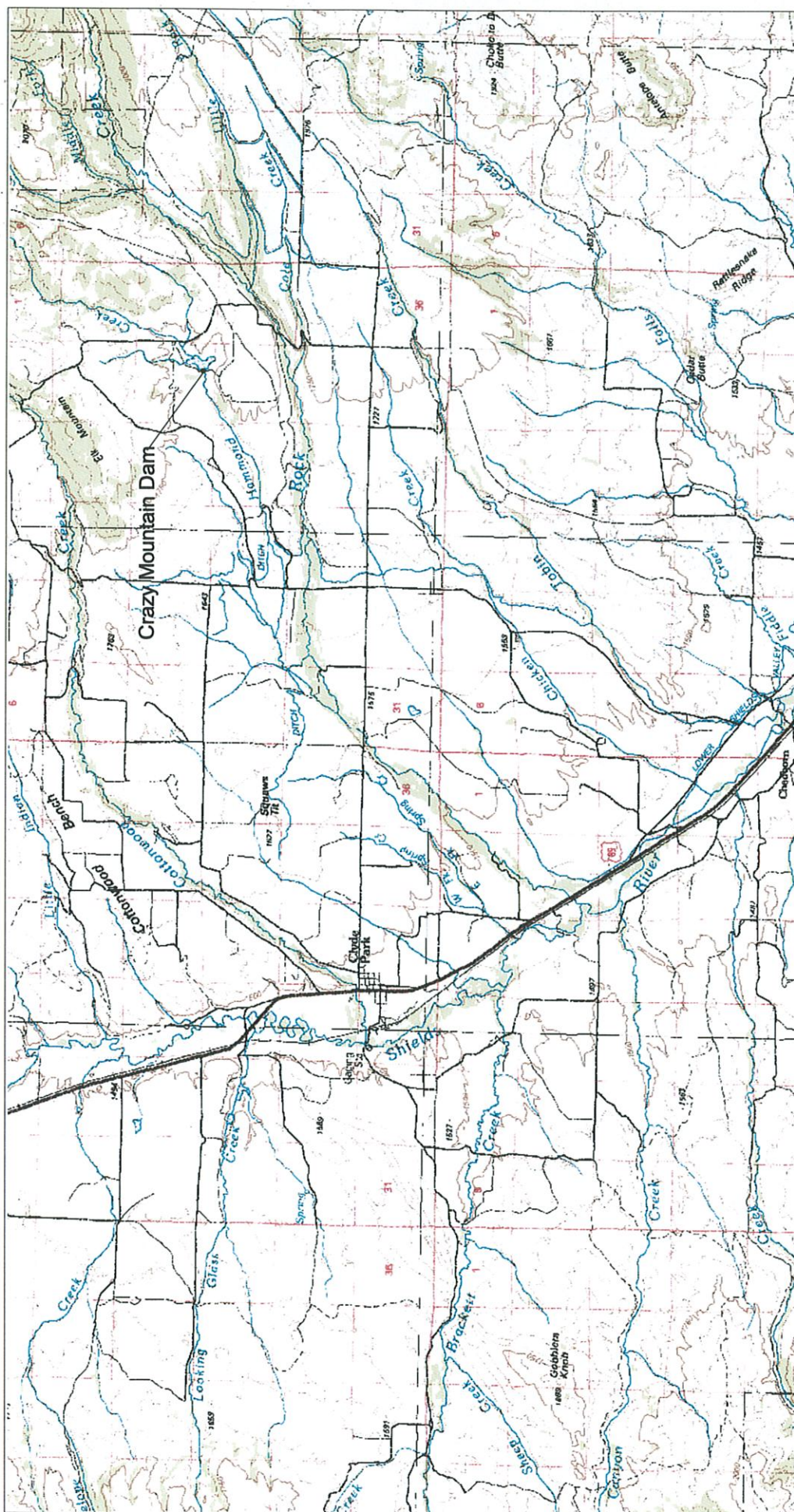


Key

- Cities
- Highways
- Lakes
- Counties

Inset map on next page.

Crazy Mountain Dam Inset Map



Crazy Mountain Dam Emergency Action Photos



Photo 1 of 10

* Inundation lines are merely estimates.
Evacuations should be made well
beyond this zone.

Approximate Scale: Photo = 1 mile

Crazy Mountain Dam Emergency Action Photos



Photo 2 of 10

* Inundation lines are merely estimates.
Evacuations should be made well
beyond this zone.

Approximate Scale: Photo = 1 mile

Crazy Mountain Dam Emergency Action Photos

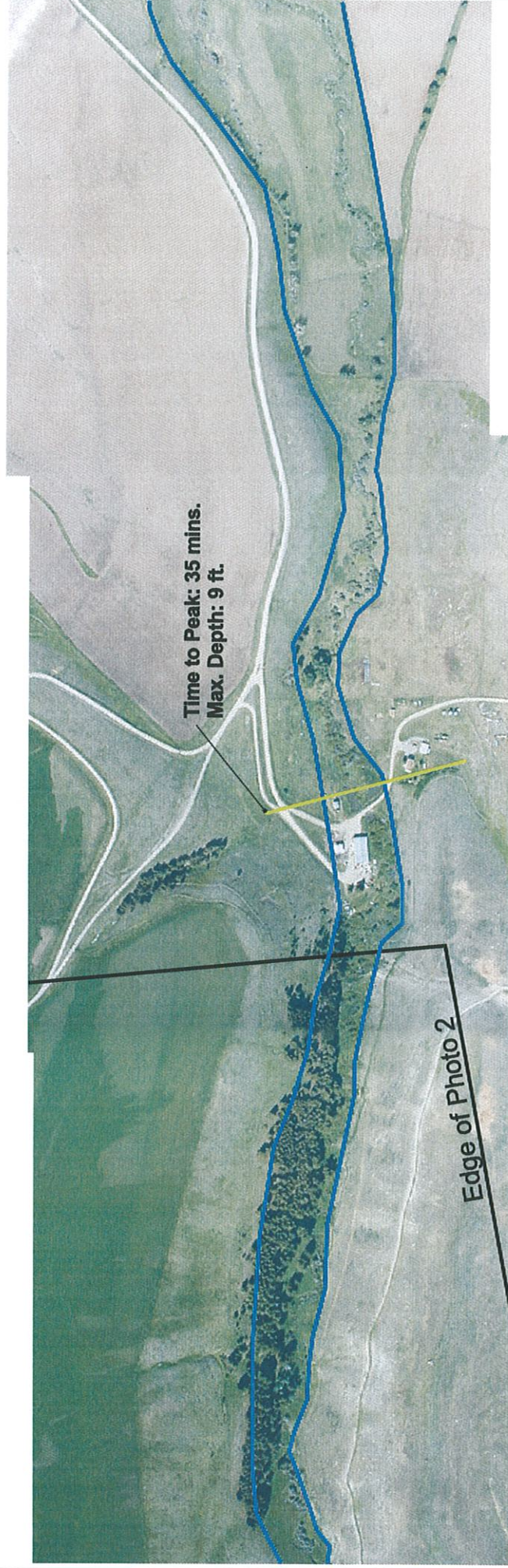
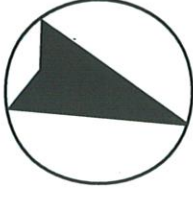


Photo 3 of 10

* Inundation lines are merely estimates.
Evacuations should be made well
beyond this zone.

Approximate Scale: Photo = 1 mile

Crazy Mountain Dam Emergency Action Photos

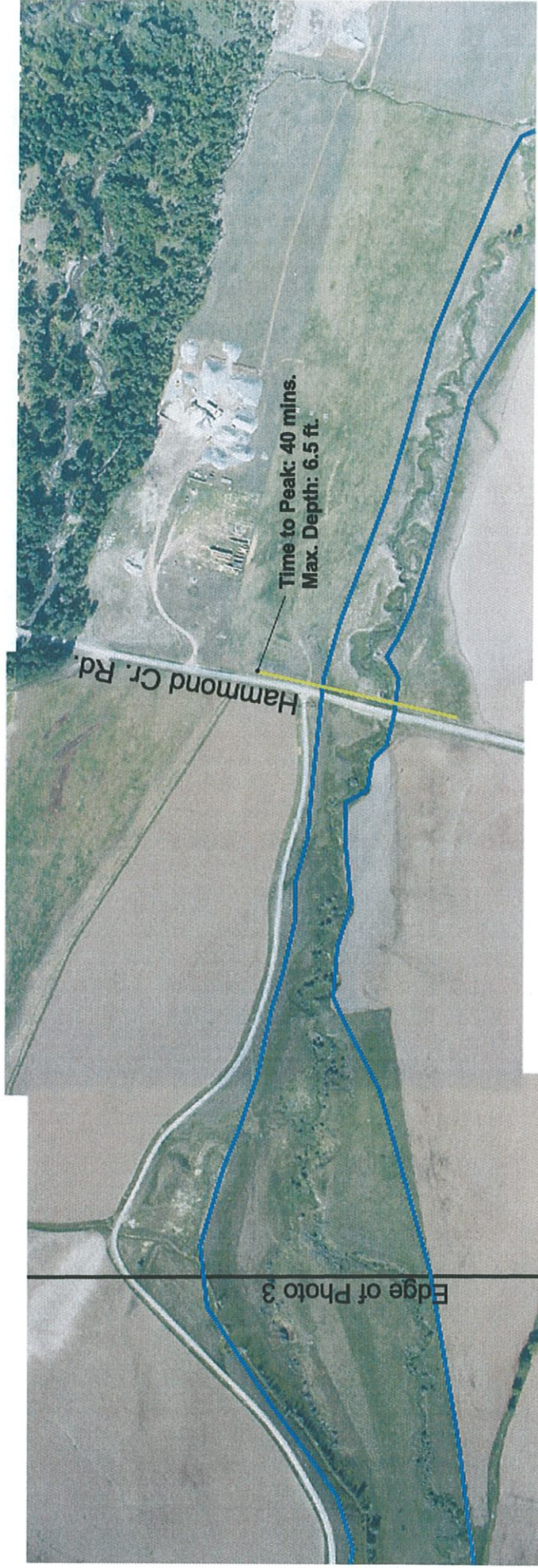


Photo 4 of 10

* Inundation lines are merely estimates.
Evacuations should be made well
beyond this zone.

Approximate Scale: Photo = 1 mile

Crazy Mountain Dam Emergency Action Photos

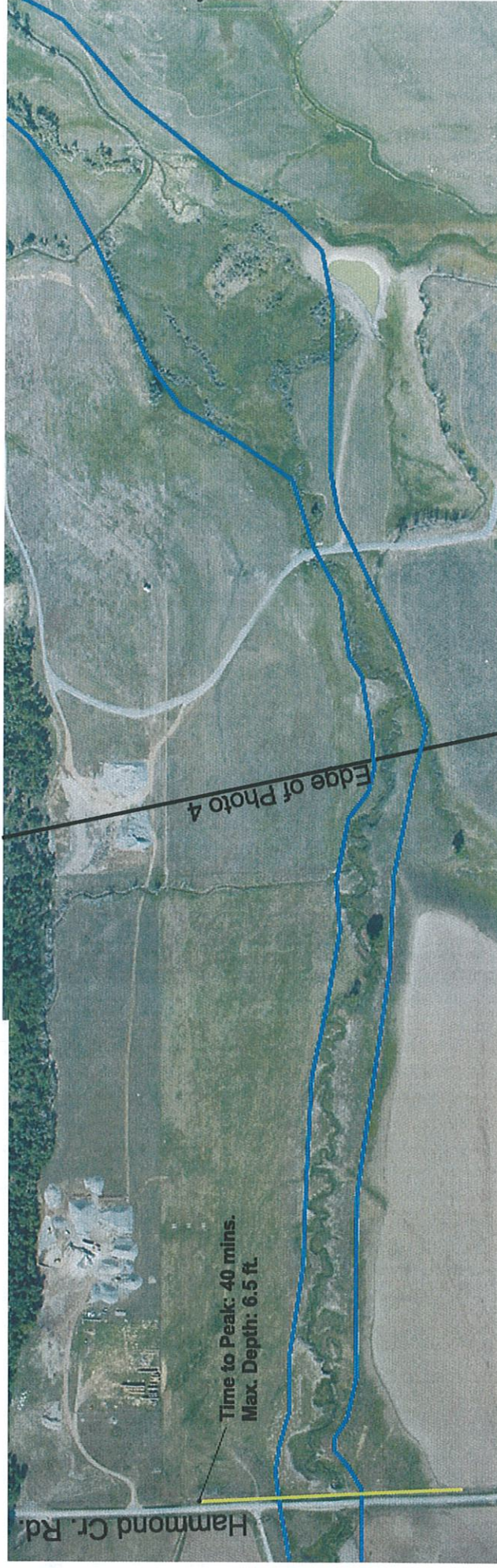


Photo 5 of 10

* Inundation lines are merely estimates.
Evacuations should be made well
beyond this zone.

Approximate Scale: Photo = 1 mile

Crazy Mountain Dam Emergency Action Photos

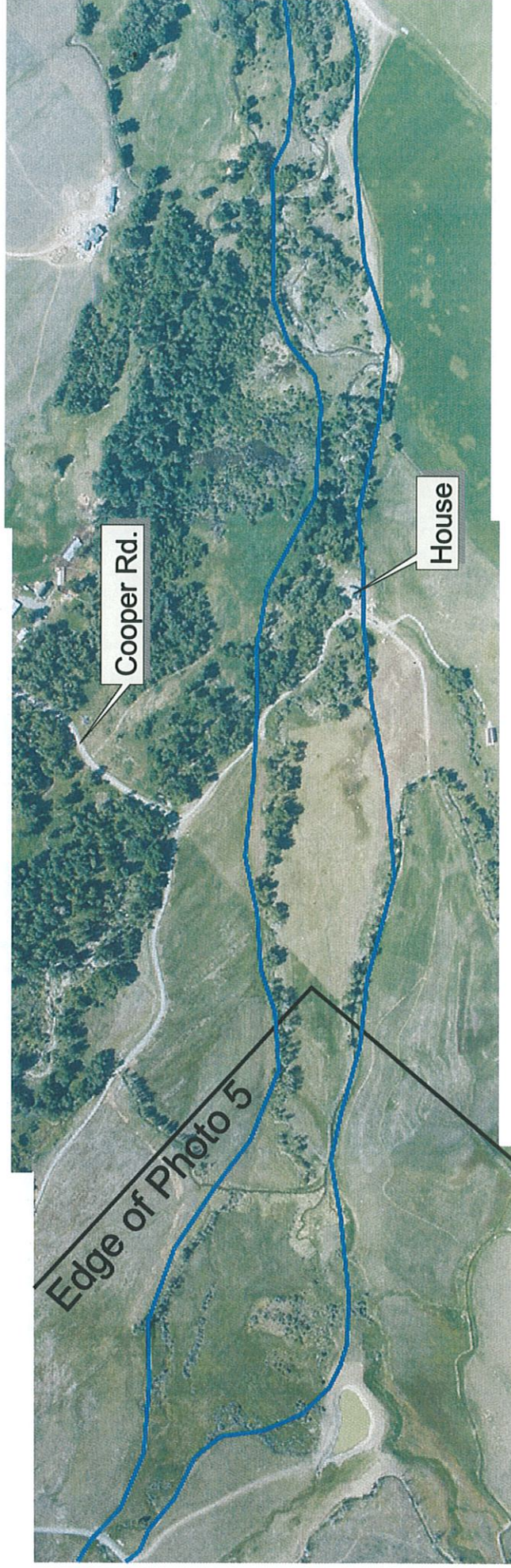


Photo 6 of 10

* Inundation lines are merely estimates.
Evacuations should be made well
beyond this zone.

Approximate Scale: Photo = 1 mile

Crazy Mountain Dam Emergency Action Photos



Photo 7 of 10

* Inundation lines are merely estimates.
Evacuations should be made well
beyond this zone.

Approximate Scale: Photo = 1 mile

Crazy Mountain Dam Emergency Action Photos



Photo 8 of 10

* Inundation lines are merely estimates.
Evacuations should be made well
beyond this zone.

Approximate Scale: Photo = 1 mile

Crazy Mountain Dam Inundation Photos



* Inundation lines are merely estimates.
Evacuations should be made well
beyond this zone.

Photo 9 of 10

Approximate Scale: Photo = 1 mile

Crazy Mountain Dam Emergency Action Photos

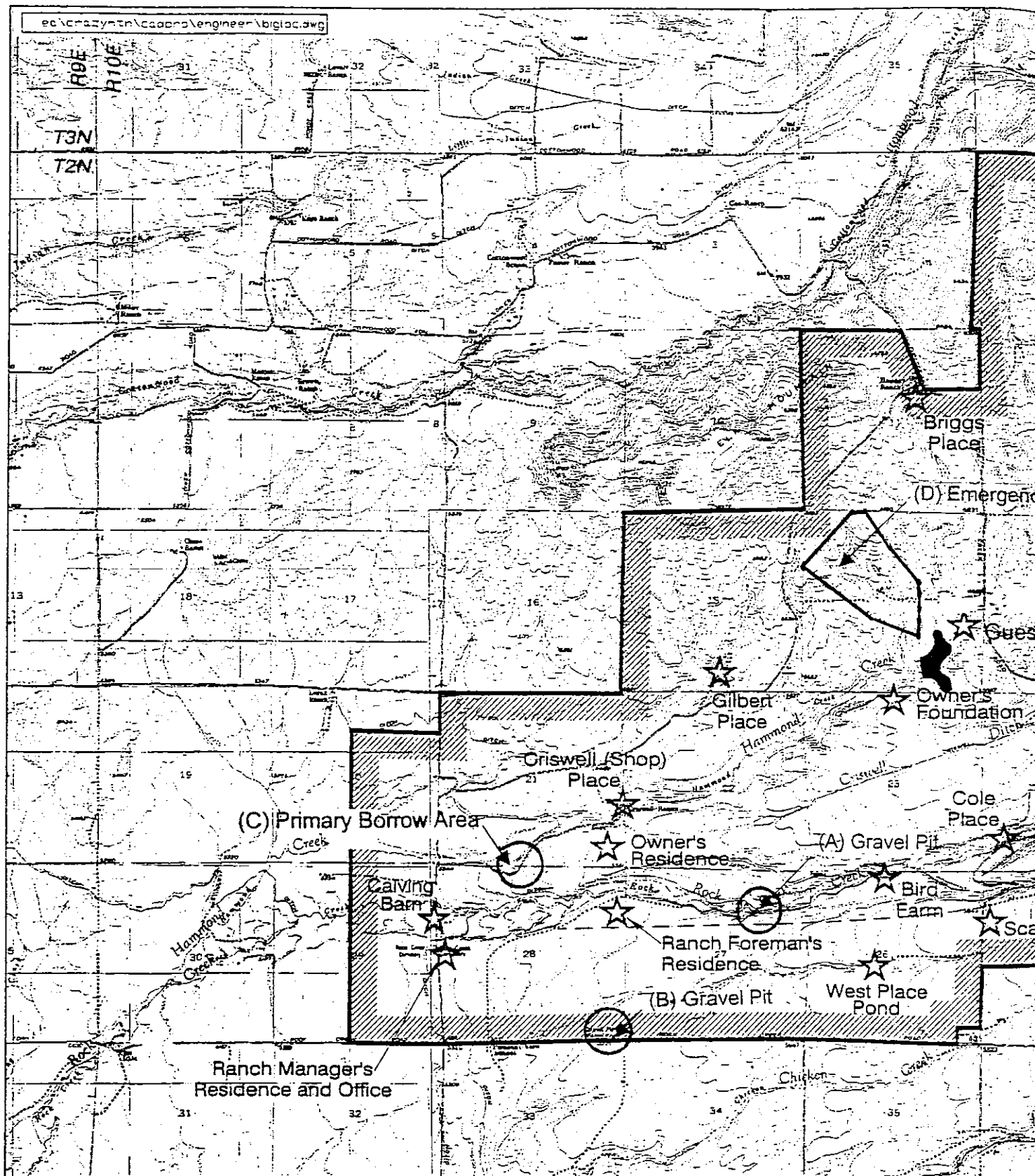


* Inundation lines are merely estimates.
Evacuations should be made well
beyond this zone.

Photo 10 of 10

Approximate Scale: Photo = 1 mile

Appendix C
Emergency Material Location Map



Source: Scanned 7 1/2 Minute Clyd



0 Feet 4000

MAXIM 9911837.100

☆ Facility Location

Crazy Mountain Ranch Property

Appendix D
Telephone Directory

TELEPHONE DIRECTORY

A. Priority One

1. SHERIFF Park County911 or (406) 222-2050

2. LOCAL DISASTER AND EMERGENCY SERVICES

Mrs. Belinda Van Nurdén..... Office: (406)-222-4190
.....Home: (406)-222-6465

Montana Disaster and Emergency Services (Helena) (406) 841-3911

3. EVACUEES (in upstream-to-downstream sequence)

Criswell Shop / CMR Staff (406)-686-4982
Criswell Place/CMR Staff (406)-686-4077
Don and Karen Forkus (406)-686-4023
Jack & Alice McInerney (406)-686-4896
Phil & Brenda Gilbert (406)-686-4675
Sharon Keefer (406)-686-4648

B. Priority Two

4. LOCAL ENGINEERS

Gary Fischer, P.E., Civil Engineer (406) 443-4150
Hydrometrics, Inc.

5. MONTANA DEPT. OF NATURAL RESOURCES AND CONSERVATION

Dam Safety Program Engineers:Office: (406) 444-6613

Michele Lemieux, (Soils and Embankments) Office: (406) 444-6613
Home: (406) 225-9062
Cell: (406) 459-3572

Sam Johnson, Billings Regional Engineer Office: (406) 247-4423
Home: (406) 896-0371
Cell: (406) 670-9691

Mr. Laurence Siroky, Water Operations Bureau Chief Office: (406) 444-6816
Home: (406) 442-2806
Cell: (406) 431-7475

6. NATIONAL WEATHER SERVICE
 - Helena.....(406)-449-5204
 - Great Falls(406)-453-2081
 - Billings(406)-657-6988
7. Crazy Mountain Ranch
 - Security (24/7)(406) 686-4210
8. BUREAU OF LAND MANAGEMENT.....(406)-657-6561
9. MONTANA DEPARTMENT OF STATE LANDS.....(406)-444-2074
10. U.S. FOREST SERVICE(406)-329-3176

Appendix E
Dam Incident Report Form

DAM INCIDENT REPORT FORM

DATE: TIME:

NAME OF DAM:

STREAM NAME:

LOCATION:

COUNTY:

OBSERVER:

OBSERVER TELEPHONE:

NATURE OF PROBLEM:

LOCATION OF PROBLEM AREA (Looking Downstream):

EXTENT OF PROBLEM AREA:

FLOW QUANTITY AND COLOR:

WATER LEVEL IN RESERVOIR:

IS SITUATION WORSENING?

EMERGENCY STATUS:

CURRENT WEATHER CONDITIONS:

ADDITIONAL COMMENTS:

Appendix F
Plan Distribution List

Emergency Action Plan Distribution List

Crazy Mountain Ranch Facilities Manager, Kevin Bales
Crazy Mountain Ranch Specialist, Environmental and Safety, Jonathan Croston
Crazy Mountain Ranch Mobile and Emergency Command Centers
Sheriff, Park County Montana
Park County DES Coordinator, Mrs. Belinda Van Nurden
MT Disaster and Emergency Services, Dave Maser
The National Weather Service, Gina Loss